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*UZO-NWOSU ADAEZE*

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*18/ENG05/065*

*MECHATRONIC ENGINEERING*

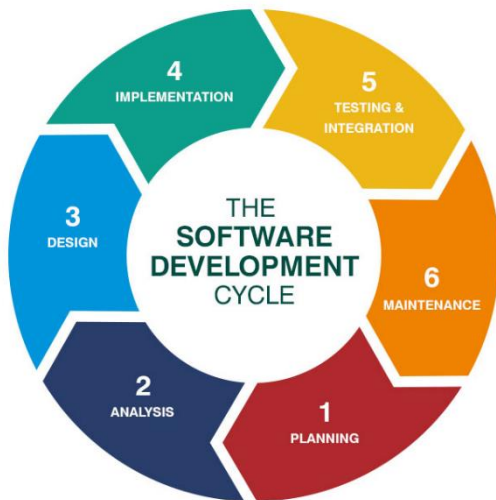
*ENG 224 ASSIGNMENT*

QUESTIONS

- *DESIGN THE APPLICATION FOLLOWING THE SOFTWARE DEVELOPMENT CYCLE*
- *CRITICALLY DISCUSS THE HARDWARE AND SOFTWARE FEATURES*
- *SUPPORT YOUR ANSWER WITH A FLOWCHART AND ALGORITHM*
- *DRAW THE TOP-DOWN OR BOTTOM-UP DESIGN APPROACH*

## SOFTWARE DEVELOPMENT CYCLE

### TOPIC: A WEB BASED SENSOR FOR DETECTING THOSE WITH HIGH TEMPERATURE



1. Planning: The web-based application is to be equipped with the ability to detect any individual with a temperature above the normal body temperature of 36

It is with the thermal imaging camera we can apply such function. It's used in the medical field to diagnose different disorders and diseases.

2. Specification: 50 Hz frequency, gigabyte network, auto focus, fast and precise temperature measuring, supports multi-protocol such as TCP, UDP, ICMP, etc,

accuracy of  $\pm 0.3C$ .

3. Design: we will make use of the algorithm and flow chart for the design.

4. Implementation: Any high-level language of the user's choice. Preferably python or java to create more flexibly alternatives / paths.

Athena Security uses infrared cameras and an algorithm that analyzes body temperature to detect people who have a temperature higher than 100 degrees. If a temperature is detected, the camera sends an immediate alert to the business owner or individual monitoring the space. According to the company, the system is accurate at reading a person's body temperature up to a half degree Celsius.

5. Testing and debugging: In this stage we are to test whether it was able to detect those with high body temperature. If you encounter some errors in the storage of the data or the transmission of it wirelessly. We will take it for debugging.

6. Release and Update: The software is going to be released after two weeks of thorough testing and debugging.

the maintenance of the system would be done in two ways, for the software, there would be an occasional software update, to ensure that the system can be up to in ways of serving people better and for the hardware (vest), it would be taken of by the users or consumers.

## HARDWARE FEATURES

- Analog composite video

Digital interface (USB, Camera Link, Serial)

Exposure time control

On board corrections

## SOFTWARE FEATURES

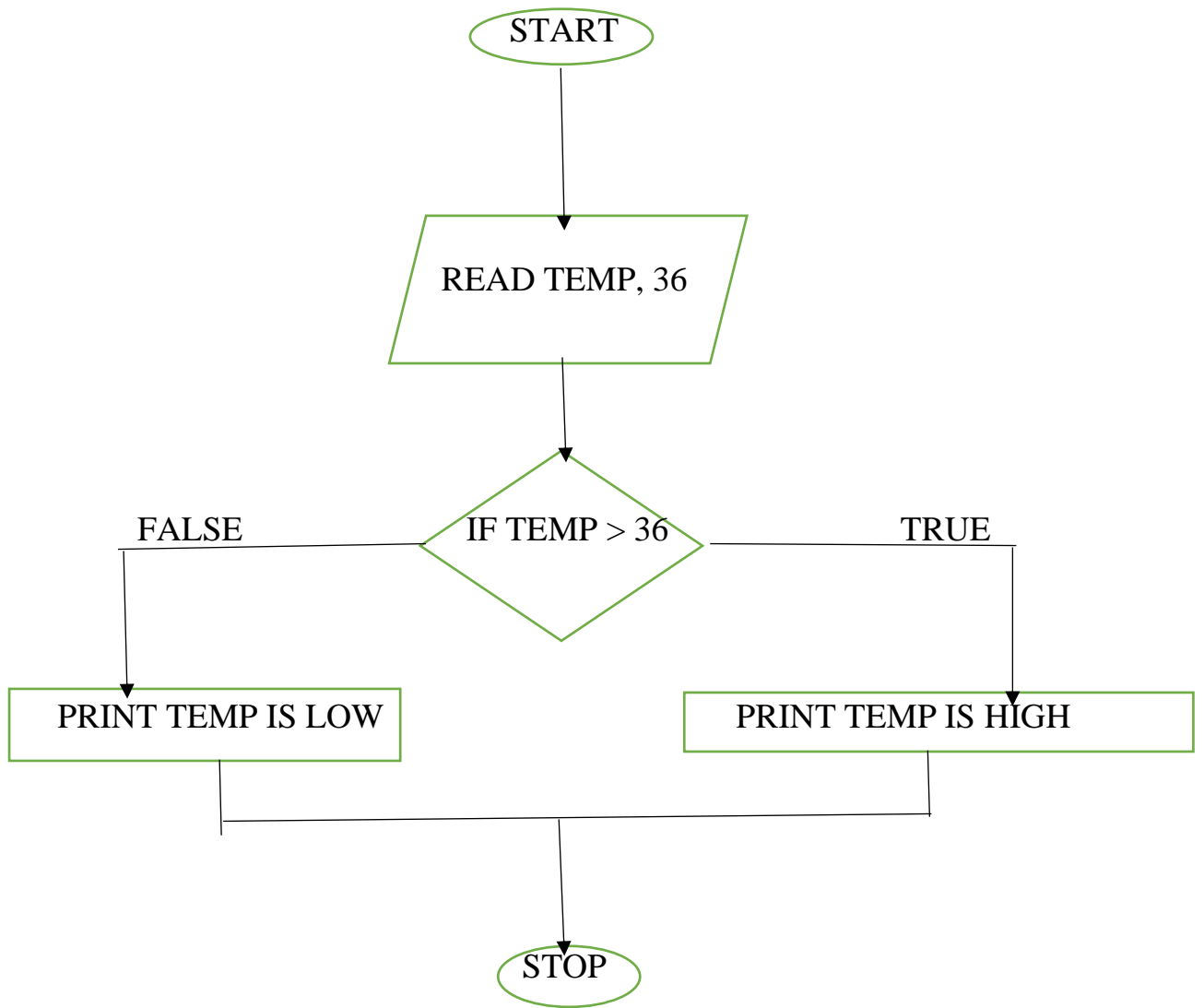
1. Multiple image or video formats - Process and export images in multiple file formats such as .jpg, .tiff, .bmp, .gif or .avi as well as proprietary formats that can tap more data for advanced analyses. Fluke infrared cameras can save in .is2 format, for instance, for further image processing and analysis in SmartView® software, and images can be exported from this software to many commonly used file formats. You may also choose to export the temperature data from the image to CSV or XLS format for further analysis.
2. Edit and manipulate images - Adjust level and span, change emissivity, add markers, highlight boxes, reference images, color alarms.
3. Combine visible light and infrared images - Adjust and blend visible and infrared images in order to better locate potential problem areas. This is the IR Fusion® feature in Fluke software.
4. Live viewing and sharing of infrared images or video - View streaming data from your camera on your smartphone or computer. This is available via the Fluke Connect® mobile app on some models, for example. Share images in real-time Create templated or custom reports - Best-in-class software adds options for building and customizing reports to export in .pdf or .docx formats for sharing.

5. 3-dimensional analysis - A capability of better software programs for thermal image analysis, viewing infrared images from different perspectives helps eliminate false positives and supports the identification of additional problem areas. Fluke's 3D analysis capability is called 3D-IR®.
6. Side-by-side comparison - Important to predictive maintenance, side-by-side comparisons of images taken at different times are included in the Fluke Connect software platform's Asset Health dashboard.
7. Change color palette - Control colors in the image to make heat or cold easily apparent or view as grayscale.
8. - Add audio, text, and additional visible light images to help add all necessary information about an application.
9. Categorize and catalog images - Tools to categorize, tag or catalog thermal images and associate with equipment. This feature is built into Fluke Connect Assets software.

#### ALGORITHM

1. Start
2. Read temp
3. If temp >36
4. Print temp is high
5. Else
6. Print temp is low
7. End

#### FLOWCHART



TOP DOWN DESIGN APPROACH

